AMENDMENTS TO THE CLAIMS

This listing of claims will replace all prior versions, and listings, of claims in the application:

1.   (Currently amended)   A method for managing traffic in a <u>public</u> communications network comprising acts of:

        (a) providing, in a network device, a <u>flow</u> cache containing at least predefined characteristics associated with <u>frequent flyer</u> packets <u>comprising packets received in bursts,</u> and actions paired with selected ones of said predefined characteristics;

        (b) receiving at least one of the <u>frequent flyer</u> packets ~~in~~ <u>into</u> the flow cache of said network device;

        (c) selecting, from said received packet, characteristics similar to the at least predefined characteristics;

        (d) correlating the characteristics selected from said received packet with the predefined characteristics;

        (e) using results from the correlating step to perform Layer 3 or higher classification of the received packet;

        (f) identifying data packets with most bundling when compared to other data packets<u>, and avoiding the flow cache for those other data packets</u>; and

        (g) initializing an expiration timer ~~that controls~~ <u>to control</u> a frequency at which the cache is aged, wherein the expiration timer corresponds to an expected burst interval of the identified packets.

2.   (Original)   The method of claim 1 wherein the process includes enforcing the paired action against the received packet if the characteristics of said received packet matches the at least predefined characteristics.

3.   (Original)   The method of claim 1 or claim 2 wherein the at least predefined characteristics include Internet Protocol (IP) Destination Address (DA), IP Source

Address (SA), Transmission Control Protocol (TCP) Destination Port (DP) and TCP Source Port (SP).

4.   (Currently amended)   The method of claim 1 wherein the correlating act includes comparing the selected characteristics of the received packet with the predefined characteristics.

5.   (Currently amended)   A method comprising acts of:

providing in a memory a mapping of predefined characteristics associated with packets including packets received in bursts and actions to be performed;

receiving packets to be classified;

correlating selected characteristics of received packets with the predefined characteristics;

performing stored actions on said received packets, if the selected characteristics match the predefined characteristics, wherein the performed stored actions include Layer 3 or higher frame classification actions;

identifying packets with most bundling when compared to other data packets avoiding stored actions on packets having characteristics that do not match the predefined characteristics; and

initializing an expiration timer that controls a frequency at which contents of the memory are altered, wherein the expiration timer corresponds to an expected burst interval of the identified packets.

6.   (Currently amended)   The method of claim 5 wherein the correlating act includes comparing the selected characteristics of the received packet with the predefined characteristics.

7.   (Original)   The method of claim 5 wherein the predefined characteristics include Source Address (SA), Destination Address (DA), Source Port (SP) and Destination Port (DP).

8.   (Original)   The method of claim 5 wherein the received packets include data packets.

9.   (Previously presented)   The method of claim 5 wherein the stored actions associated with predefined characteristics are updated only from a first packet of a group of packets.

10.   (Original)   The method of claim 9 wherein the stored actions are being performed on all packets following the first packet of the group of packets.

11.   (Currently amended)   A system including
       a processor;
       a <u>flow</u> cache operatively coupled to said processor, said cache storing a mapping between predefined characteristics of packets and actions wherein said processor executes a first program that causes said processor to correlate characteristics of selected packets with the predefined characteristics and ~~enforcing~~ <u>enforces</u> on said selected packets actions associated with predefined characteristics if characteristics from the selected packets match the predefined characteristics; ~~and~~
       a memory operatively coupled to said processor and storing therein[[:]] <u>;</u>
       a first data structure for a full packet search wherein said processor executes a second program that causes said processor to access the first data structure and ~~imposing~~ <u>imposes</u> on said selected packet an action stored in said first data structure if a mismatch occurs between the predefined characteristics and the characteristics from the selected packets; and
       a second data structure that includes an aging algorithm for aging the cache, the aging algorithm initializes an expiration timer, decrements the expiration timer by a check time interval that is less than a current value of the expiration timer, reviews a Layer 3 or Layer 4 database for a change to the Layer 3 or Layer 4 database, and purges the cache if a change has been made during the check time interval, wherein the expiration timer corresponds to an expected burst interval of data packets identified as frequent flyer

packets, and does not correspond to the time intervals between packets that are not identified as frequent flyers.

12.   (Original)   The system of claim 11 wherein the predefined characteristics include Source Address (SA), Destination Address (DA), Source Port (SP) and Destination Port (DP).

13.   (Original)   The system of claim 11 wherein the processor includes a network processor.

14.   (Cancelled).

15.   (Previously presented)   The system of claim 11 wherein the selected packet includes received packets.

16.   (Previously presented)   The system of claim 11 wherein the second program includes a full match algorithm.

17.   (Previously presented)   The system of claim 11 wherein the second program includes a Longest Prefix Match algorithm.

18.   (Previously presented)   The system of claim 11 wherein the second program includes a Software Managed Tree algorithm.

19.   (Previously presented)   The system of claim 11 wherein the memory is internal to the processor.

20.   (Previously presented)   The system of claim 11 wherein the memory is external to the processor.

21.   (Previously presented)   The system of claim 11 wherein the data structure includes a Direct Table and Patricia Tree.

22.   (Currently amended)   A system including

a memory that stores a mapping between predefined characteristics of packets and actions to be performed for a subset of the set of all characteristic values, wherein the actions to be performed are Layer 3 or higher classification actions; and

a controller that performs the following actions:

correlates characteristics in a received packet with the predefined characteristics, and performing performs the actions on said received packet if the characteristics match the predefined characteristics and avoids performing actions on packets that do not match the predefined characteristics; and

uses an expiration timer to age the memory, wherein the expiration timer corresponds to an expected burst interval of packets identified as being frequent flyer packets.

23.   (Currently amended)   A computer-readable medium comprising computer-executable instructions that, when executed by a processor, produce a method that comprises:

correlating characteristics of a received packet with characteristics in a table, said table containing a subset of all possible characteristic values;

enforcing an action stored in said table on the received packet if the characteristics of the received packet and the characteristics in the table match, wherein the action facilitates Layer 3 or higher packet classification, and avoiding said action if the characteristics do not match; and

updating contents of the table at times that correspond to an expected burst interval of data packets that are identified as being frequency flyer data packets.

24.   (Previously presented)   The computer-readable medium of claim 23 further including instructions to generate the table containing the characteristics and associated actions.

25-30. (Cancelled)

31.   (Currently amended)   A method of classifying packets in a
communications network comprising acts of:

    (a) receiving packets in a network device;

    (b) determining data packets present in received packets and identifying which
packets are ~~frequency~~ frequent flyer packets by: [[;]]

    (e i) providing a cache in which predefined characteristics of packets and actions
associated with selected ones of the predefined characteristics are stored;

    (ii) for each data packet so determined, correlating selected characteristics of said
each data packet with the predefined characteristics in said cache; ~~and~~

    (iii) for each data packet with selected characteristics matching one of the
predefined characteristics imposing on said each data packet the action associated with
said one of the predefined characteristics, wherein the packets include TCP/IP packets,
and wherein the determining act further includes the acts of:

    (c) examining control bits in the TCP header;

        (i) if selected ones of said control bits are set to a first state, examining a
length field in the IP header to determine its value;

        (ii) multiplying a value in the data offset field in the TCP header by 4; and

        (iii) subtracting the result of the multiplication from the value in the length
field; and

    (d) updating contents of the cache at times that correspond to an expected burst
interval of packets identified as frequency flyer packets.

32-33. (Cancelled)

34.   (Previously presented)   The method of claim 31 wherein the first state
includes logical "0".

35.   (Previously presented)   The method of claim 31 wherein the selected ones
of said control bits include SYN, FIN and RST.